Hastings Environmental Law Journal

Volume 4
Number 1 *Summer 1997*

Article 8

1-1-1997

Gone Today, Here Tomorrow: Policies and Issues Surrounding Wildlife Reintroduction

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by Craig R. Enochs[◊]

I. Introduction

"We are a culture of symbols. The wolf and the other predators have become symbols for a slow and difficult process: Man is confronting his ancient world view of dominion. It is a deep struggle, a way of facing the mistakes of our past. For most people, it is occurring at the subconscious or subliminal level. But it is occurring."[1]

Wildlife reintroduction has a long tradition in the United States, dating back roughly one hundred years.[2] Early experiments with wildlife reintroduction usually involved game species which were desired by hunters and trappers.[3] These programs originated at the state level but were joined by the federal government in the 1930's.[4] Notwithstanding these early efforts, federal funding for the restoration of nongame species was not authorized until 1980.[5] Since this development, wildlife reintroduction has blossomed to over 500 wildlife reintroduction episodes each year.[6] Despite this long history of reintroduction, the policies and issues surrounding it are more important now than ever. With the recent addition of large predator reintroduction programs, the debate surrounding this issue has grown even more heated.

This note seeks to explore the policies and issues surrounding wildlife reintroduction. The wolf, California mountain lion, and the California condor will be used as the primary vehicles to examine the issues and policies surrounding species reintroduction. Section II will discuss the legislative foundations for reintroduction programs. Section III will examine the biological issues of reintroduction. Section IV will survey the public attitudes toward reintroduction. Section V will examine the economic issues which are often the focus of the debate.

II. The Endangered Species Act and Proposition 117

The Endangered Species Act is the seminal piece of legislation for federal wildlife reintroduction programs.[7] Similarly, the passage of Proposition 117 in California introduced a new element to wildlife reintroduction: the citizen initiative.[8] Both acts have left a lasting impact whose full effects are still being discovered.

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1. John Balzar, A *Reversal of Fortune: Predators Going From Targets to Icons*, L.A. TIMES, July 6, 1994, at A7.

2. *See* Keith Saxe, Note, *Regulated Taking of Threatened Species Under the* ESA, 39 HASTINGS L. J. 399, 402 (1988).

3. *See* Jeffrey E. Thompson, Note, *Damage Caused By Reintroduced Wildlife: Should The Government Be Held Accountable?*, 1992 U. ILL. L. REV. 1183 (1992).

4. *See id.*

5. *See* 16 U.S.C. § 669, 777, 2901-12 (1994).

6. *See* William Booth, *Reintroducing A Political Animal*, 241 SCIENCE 156, 158 (1988).

7. *See* 16 U.S.C. § 1531 (1994) (hereinafter ESA).

8. *See* CAL. FISH & GAME CODE § 2780 (West Supp. 1990).

Since the passage of the ESA, 912 United States plants and animals have been listed as threatened or endangered.[9] Of these, only six have fully recovered, while seven others became extinct.[10] In addition, fourteen more species are feared to be extinct, and 304 of the rest currently have no plan in place to save them.[11] A myriad of issues surround the ESA and the species it protects, and their combined weight slow down the recovery process to a trickle. In response to its critics, Congress created an experimental population designation for endangered species in 1982.[12] Under this designation, the Secretary of the Interior could reintroduce a species with fewer protections than it would otherwise receive in order to reduce the opposition to the proposal.[13] Farmers and ranchers no longer must apply for an incidental taking permit before taking a depredating animal under the section 1539(j) designation because the overall protection of these creatures is reduced from the endangered to the threatened level.[14] The availability of this provision has led to a spate of new reintroduction proposals.[15] The California condor is the only reintroduced species to have both endangered and experimental populations under the ESA, and this designation has led to new conflicts with landowners.[16] While the experimental population designation has greatly facilitated the reintroduction process, it is not without its critics.[17]

On a smaller level, California voters responded to a proposed mountain lion hunting season with the passage of Proposition 117, the California Wildlife Protection Act of 1990.[18] This act made the mountain lion a specially protected species in California, a designation which no other species possessed.[19] In addition, a $30 million annual fund was set aside to purchase wildlife habitat for the mountain lion and other species.[20] As a result of this and other measures,[21] the mountain lion has greatly increased both its range and numbers in California.[22]

9. *See* Linda Kanamine, *Species Act Endangered? Support for Controversial Program Slips*, USA TODAY, Dec. 2, 1994 at 1A.

10. *See id.*

11. *See id.*

12. *See* 16 U.S.C. § 1539(j) (1994).

13. First the Secretary must designate the reintroduced population as either essential or nonessential to the survival of the species. If the population is designated to be essential, then it receives the full protection of a threatened species. If the population is designated nonessential, then it receives only the protection of a species proposed to be listed unless it occurs in an area within the National Wildlife Refuge System or the National Park System, in which case it receives full threatened protection. Nonessential populations also may not have critical habitat designated for them. To qualify as a §1539(j) experimental population, the population must be completely geographically separate from any nonexperimental population of the same species. *Id.*

14. *See id.*

15. These proposals include the grizzly bear, red wolf, and Mexican wolf. *See* Balzar, *supra* note 1.

16. The condor is the only species to have both an endangered and experimental designation. The original reintroduced population in Southern California was given endangered status, protecting both it and its habitat, to facilitate its recovery from the brink of extinction. No other reintroduced animal, not even the whooping crane or the black-footed ferret, has ever received endangered status. With the ongoing success of the California population, the Fish and Wildlife Service ("FWS") has proposed a second condor population in the Grand Canyon in Arizona. Arizona officials have agreed so long as that population is given a § 1539(j) designation. As a result, a developer in California has sued the FWS to compel the designation of all condor populations as experimental and therefore without any critical habitat. Without this designation, condor habitat is protected and the developer fears it will not be able to build on its land, which has occasionally been used for forage by the condor. The FWS has offered to designate the developer's land under a § 1540(a)(1)(b) habitat conservation plan, which would allow development on the majority of the land and some incidental takings if necessary. The developer has refused this offer and the case is pending. This conflict is ironic since the condor is a relatively benign species; as a scavenger, its presence does not impair the cattle, timber, mining, or recreation industries. *See* telephone Interview with Robert Mesta, U.S.F.W.S. Condor Program Coordinator (Jan. 9, 1996). *See also*, Rhonda Bodfield, *Condor Release Challenged: The Reintroduction of the Giant Bird in Northern Arizona is Protested by a Utah County Already Affected by the Endangered Species Act*, TUCSON CITIZEN, June 6, 1996, at 1A. A less controversial program to reintroduce condors to the Big Sur area of Central California was successful recently, releasing four more condors into the wild. The FWS hopes this group will eventually merge with the group previously reintroduced into Southern California. *See* Sarah Lubman, *Big Sur Ridges See California Condors Again*, SAN JOSE MERCURY NEWS, Jan. 20, 1997, at 20A.

17. Some environmentalists argue that § 1539(j) classification buys political compromise with the blood of the protected species. *See* John Andrew Zuccotti, Note, *A Native Returns: The Endangered Species Act and Wolf Reintroduction to the Northern Rocky Mountains*, 20 COLUM. J. ENVT'L. L. 329, 342 (1995). This assertion seems unfair, since the Secretary must make his classification decision with the good of the species in mind. With this in mind, it seems wisely utilitarian to sacrifice some protections if it will ensure the greater prosperity of the species as a whole. *See* 16 U.S.C. § 1539(j)(2) (1994).

18. CAL. FISH & GAME § 2780 (1990) (hereinafter Proposition 117). It is worth noting that the mountain lion is neither threatened nor endangered in California. *See infra* note 63.

19. *See* CAL. FISH & GAME § 2786 (1990).

20. *See id.* at § 2787.

21. Mountain lions were bountied predators in California from 1907-1963. In 1969, the species was designated a game mammal, a designation it held until recreational hunting of lions was outlawed in 1972. In response to proposed hunting seasons in the late 1980's, Proposition 117 was passed in 1990. *See* Terry Mansfield, *What We've Learned About Lions*, 57 OUTDOOR CALIFORNIA SPECIAL MOUNTAIN LION ISSUE 4, 6 (1995).

22. Best current estimates place the mountain lion population at 5,100 adults and the range at 80,000 square miles. Both these numbers are much larger than they were twenty-five years ago. *See id.* In addition, recent studies have indicated that lion densities in historic ranges are greater than was previously believed, and lion predation on wild ungulates has occurred in areas where no lion was previously known to exist. *See* DFG *Testimony Before Senate Wildlife Committee*, 57 OUTDOOR CALIFORNIA SPECIAL MOUNTAIN LION ISSUE 25 (1995) [hereinafter DFG *Testimony*].

While an experimental classification under section 1539(j) seems to strip most of the protection from an endangered species, outside circumstances will often mitigate the damage. The most famous case of section 1539(j) reintroduction is that of the gray wolf in Yellowstone.[23] Lawsuits were filed by environmental groups to stop this effort because of their fear that lessened protection would allow ranchers to shoot the wolves at will[24] and that, given time, the wolves could recolonize from Canada on their own.[25] The American Farm Bureau also filed several suits because of its fear that reintroduced wolves would maraud livestock and leave the ranchers with no recourse.[26] The reality lies somewhere between these two extremes. As long as the wolves stay within the Yellowstone boundaries, they will receive full protection as an endangered species.[27] Furthermore, the wolves are being released in remote areas of the park, so their contact with man should be limited.[28] With a few exceptions, this has so far proven to be true.[29] Lastly, biologists have determined that reintroduction efforts are necessary because natural recolonization is an unlikely prospect.[30]

Critics have criticized reintroduction proposals under section 1539(j) for both their necessity and their efficacy. This is usually the case when a large predator, such as the wolf, is reintroduced. Some ranchers argue that it is a waste of resources to reintroduce a species they fought so hard to eliminate,[31] that environmentalists are out of touch with the ranchers' situation,[32] that it is burdensome to progress and development to have to deal with the regulations,[33] and that the ESA is not even effective at what it purports to do.[34] These arguments are largely without merit, and the FWS has made a point of responding to ranchers' concerns.[35] Species reintroduction has tangible benefits that far outweigh any burdens it may impose.

Programs under section 1539(j) reintroduce an experimental population either through relocation of members of the species living elsewhere or by the captive breeding and reintroduction of the last members of the species indigenous to the area. Both methods are useful, but both also have enough problems to merit careful consideration before use.

Relocation is the simpler alternative and is the one being used to reintroduce gray wolves to Yellowstone.[36] While the wolves seem to be doing well, few programs have experienced similar success. An effort to reintroduce lynx to New York using

23. *See* U.S. FISH AND WILDLIFE SERVICE NORTHERN ROCKY MOUNTAIN WOLF RECOVERY PLAN (1988) [hereinafter RECOVERY PLAN].

24. *See* Louis Sahagun, *As Call of the Wild Returns, Changes Echo Across Nature Ecosystem: Wolves Reintroduced to the Yellowstone Show Promise in Helping Restore Ecological Balance*, L.A. TIMES, April 10, 1995, at A1.

25. Randall Snodgrass of the National Audubon Society argues, "Let them recolonize naturally. Without full protection the wolves don't stand a chance." Betsy Carpenter & Lisa Busch, U.S. NEWS AND WORLD REPORT, Dec. 12, 1994, 1994 WL 11127121; *See also* David Todd, Note, *Wolves - Predator Control and Endangered Species Protection: Thoughts on Politics and Law*, 33 S. TEX. L. REV. 459 (1992). *See also infra* note 29.

26. *See* Carpenter & Busch, *supra* note 25.

27. *See* 16 U.S.C. § 1539(j)(2)(C)(I) (1994).

28. *See* RECOVERY PLAN, *supra* note 23.

29. Some wolves have ranged forty miles north of the Park's boundaries and attacked pets. *See* Jim Robbins, *Roving Wolves Raise a Howl in Montana; Ranchers Are Irate: Reintroduced Animals on the Prowl Outside Yellowstone*, SAN JOSE MERCURY NEWS, Dec. 29, 1995, at 10A.

30. As a result, relocation seems to be the only viable option. *See* RECOVERY PLAN, *supra* note 23, at 11.

31. Indeed, the U.S. has a history of wolf antipathy dating back to colonization. The extermination of wolves was achieved by tearing their jaws out, attacking them with dogs, poisoning them, and explosive devices. *See* Carpenter & Busch, *supra* note 25.

32. In fact, Rep. Don Young (R-Alaska) called environmentalists a "waffle-stomping, Harvard-graduating, intellectual group of idiots." *See* Earl Lane, *Fight Over Law Shielding Endangered Species Is Moving Toward a Showdown in Congress*, NEWSDAY, Sept. 19, 1995, at A5. Other reintroduction opponents have warned of the philosophy of "shoot, shovel, and shut up," whereby the ranchers kill the animals without ever notifying the FWS and regardless of statutory limitations. *Id.*

33. The New York office of the FWS reports that they receive about 700 requests for development every year, and only 10 to 15% require further review. Of those, Mark Clough, a FWS employee, said, "I can't think of any where we've had to prevent a project" in the last several years. *Id.* Furthermore, an analysis of 98,237 endangered species consultations between 1987 and 1992 found only 55 projects had been halted. Stephen Meyer, a political science professor at MIT, found no evidence that development suffered a measurable impact from endangered species regulations between 1975 and 1990. *See id.* Even when a project needed to be changed, a common sense solution usually sufficed. For example, in Illinois, a rare plant was saved by a minor rerouting of a highway expansion. *See* J. Madeleine Nash, *The $25 Million Bird: As Endangered California Condors Return to the Wild, the Law That Saved Them is Under Attack*, TIME, Jan. 27, 1992, at 56.

34. Critics contend that any benefits to wildlife since the passage of the ESA are due to the disuse of DDT and other harmful chemicals and not to any species preservation efforts. FWS officials reply however, that while few species have been delisted, almost 40% are improving and many more have been stabilized before they drifted into extinction. *See* Lane, *supra* note 32.

35. Mollie Beattie, Director of the FWS, promised that "[w]e will exert all our effort to protect the ranchers and farmers . . . because their concerns are legitimate, but there are great values and a great public interest in restoring an entire ecosystem out there." *New Wildlife Director Supports Reintroducing Grizzlies, Wolves*, SEATTLE TIMES, Dec. 20, 1993, at B6.

36. *See* RECOVERY PLAN, *supra* note 23.

animals relocated from the Yukon failed dismally.[37] Members of the California Department of Fish and Game have had mixed experiences with relocating mountain lions.[38] Even with an optimal candidate for relocation, there are often few good places which are not already filled with lions.[39] In addition, time pressures force any lion relocation to be a speedy affair.[40] Zoos even fail as relocation sites.[41] Overall, relocation offers a bleak forecast for success.[42]

Captive breeding seems to offer odds little better than those of relocation.[43] In fact, many scientists prefer relocation because they feel it has a better chance of succeeding.[44] Several problems are prevalent in captive-breeding reintroduction. The first is that it usually involves species which are already on the brink of extinction,[45] thereby leaving a narrow margin for error.[46] Second, while it may be easy to breed a species in captivity, the captive-born young often lack important survival skills necessary in the wild.[47] Conditioning the species to adopt natural behaviors may not even be enough to ensure survival in the wild.[48]

On the other hand, there have been some notable captive breeding successes. Both the whooping crane and the black-footed ferret populations have recovered as a result of captive breeding and reintroduction,[49] despite undergoing some difficulties typical of captive breeding programs.[50] Furthermore, California condors have shown an ability to overcome problems in later generations which baffled their forefathers.[51] The biggest problem now seems to be acclimatization and the inherent danger of being in close proximity to man.[52]

Some groups argue that the FWS' training program is the wrong means to achieve a legitimate end. Both the Sierra Club and the National Audubon Society criticize the program for using mild electric shocks during captivity to condition

37. Of the 83 lynxes released, many left the area, ranging from New Jersey to New Brunswick, over 700 miles away. At least twenty of the animals were run over by cars. *See* J. Michael Kelly, *Animal-Release Programs Face Obstacles of Nature, Man Efforts to Restore Lynx, Moose, Wolf Plagued by Problems*, SAN DIEGO UNION-TRIBUNE, Nov. 30, 1994 at E3.

38. Will Clark, the Coordinator of California Department of Fish and Game's (hereinafter DFG) Wildlife Investigations Laboratory, detailed the difficulties involved in relocation. "We can't move a problem animal to some other area. . . . If a lion attacked or killed a human once, it might very well do so again. And then the public outrage - and our liability - would be well deserved. But if a lion's only misdeed is wandering into inappropriate places - what we call a 'no harm, no foul' animal - we'll try to give it another chance." Sallie Reynolds, *Living With Lions*, 57 OUTDOOR CALIFORNIA SPECIAL MOUNTAIN LION ISSUE 18, 22 (1995).

39. The DFG tries to find a relocation site with plenty of deer, few other lions, and cooperative area agencies. Unfortunately, such sites rarely exist any more. Some lions go back to their original territory, others are hit by cars. Relocation is rarely tried because success is so elusive. *See id.*

40. Lions quickly become acclimated to the presence of humans. Once they lose their innate fear of man, they can be very dangerous once they are rereleased. *See* Jeanne Clark, *Caring For Captured Wildlife*, 57 OUTDOOR CALIFORNIA SPECIAL MOUNTAIN LION ISSUE 30 (1995).

41. Zoos are often the popular destination of animals which don't fit in the wild. But for animals such as mountain lions, it is difficult for them to get used to a range decreased from tens of miles to tens of feet. Wild-born lions are also less friendly to humans than captive-born cubs. *See* Reynolds, *supra* note 38.

42. Clark says he has never been successful in relocating a lion. *See id.*

43. Dr. Benjamin B. Beck, associate director for biological programs at the National Zoological Park in Washington, studied 145 captive-breeding reintroduction projects and found only 10% lead to self-sufficient populations of 500 or more individuals. *See Effort to Reintroduce Thick-Billed Parrots in Arizona Is Dropped*, N.Y. TIMES, May 30, 1995, at C4. *See also* Jim Ritter, *Reintroductions Are Costly and Risky*, CHI. SUN-TIMES, July 24, 1996, at 1A and 4.

44. *See* Kanamine, *supra* note 9.

45. For example, the whooping crane, black-footed ferret, California condor, and Mexican wolf. *See* 50 C.F.R. § 17.11 (1992). *See also* 61 Fed. Reg. 44 (1996) (to be codified at 50 C.F.R. § 17.11).

46. Trying to reintroduce a species on the brink of extinction will almost always lead to failure. *See Effort to Reintroduce Thick-Billed Parrots In Arizona Is Dropped, supra* note 43.

47. A program to reintroduce 88 thick-billed parrots to Arizona failed when the reintroduced parrots showed no flocking or foraging skills. "They get out there and the whole thing seems to be such an overwhelmingly new situation that they sit there dazed," said Dr. Noel Snyder, the ornithologist leading the project. *Id.* Golden lion tamarins reintroduced in Brazil failed to stay in trees and seek natural food. *See* James Willwerth, *Can They Go Home Again? (Captive Breeding of Endangered Species)*, TIME, Jan. 27, 1992, at 56.

48. Even after training sessions in foraging and flocking, the parrots' skills did not improve enough to allow survival. "We reached a point where we were putting out the best candidates of captive-bred birds and just watching them die," said a biologist on the project. *See Effort to Reintroduce Thick-Billed Parrots In Arizona Is Dropped, supra* note 43.

49. For example, almost 90% of released ferrets died outside of captivity. *See* Kanamine, *supra* note 9, at 1A.

50. *See id.*

51. Captive-bred condors learned to soar without encouragement and regularly appear at feeding stations. *See* Lloyd Kiff, *To the Brink and Back: The Battle to Save the California Condor*, TERRA, Summer 1990 at 16. More importantly, while power lines killed many condors before captive breeding and during the first release, no condors have died from power lines since an avoidance program was instituted in captivity. *See* Alex Barnum, *Tough Love For The Condor*, SAN FRANCISCO CHRON., Sept. 17, 1995, at 1/Z5.

52. Two condors in 1988 became too acclimated to humans in a nearby oil field for their own safety. *See* Kiff, *supra* note 51 at 16. Some condors in 1994 had to be recaptured after they flew into the town of New Cuyama and ate weather stripping off of houses and begged for scraps at the local Burger Barn. David Clendenen, a senior wildlife biologist with the Condor Recovery Program said, "They were out of control." *See* Barnum, *supra* note 51.

the condors to avoid power lines[53] and for forcing the condors to adapt ancient instincts to modern hazards.[54] The FWS is unfazed by these criticisms however, regarding the risks addressed by its critics as necessary evils to preserve the species,[55] especially after the failures encountered before the training programs were implemented.[56] In addition to the safety value the training gives to the condors, it can instill behaviors which will be passed on to succeeding generations, thereby making future training unnecessary.[57]

Some observers question the wisdom of spending large amounts of money on uncertain reintroduction programs for the condor and species like it which may be going extinct for evolutionary purposes.[58] Advocates of the recovery program argue that this is a mischaracterization of evolutionary forces,[59] and that man is responsible for the precipitous decline of the condor population.[60] In light of the historical circumstances and recent mortality factors influencing the condor's demise, it seems reasonable to give proponents of reintroduction the benefit of the doubt.[61]

Proposition 117 was introduced in 1990 because wildlife was increasingly being relegated to "shrinking habitat areas within the heavily urbanizing areas of [the] state."[62] The protection it gave was not due to any threat of extinction; the California mountain lion has never been threatened or endangered.[63] Past misperceptions of lion populations may be due to either unknown populations or inaccurate counting, but it is clear regardless that mountain lions have increased substantially both in numbers and range since they were first protected by the series of protective laws culminating in Proposition 117.[64] This increase has been documented by multiple objective criteria, including surveys of tracks and signs, increases in domestic pet and livestock depredations, mountain lions entering areas which have been urbanized for some time, and an increased number of lion sightings in places where they had never been seen before.[65] These reports should be evaluated with some caution due to the nature of the sightings.[66] However, even if the numbers are diminished to account for error, a pattern of a steadily increasing mountain lion population is still evident.[67]

Species of special concern to the drafters of the act were the deer and mountain lion.[68] Proposition 117 aimed to preserve for these animals "[c]orridors of natural habitat . . . [in order] to maintain the genetic integrity of California's wildlife."[69] The act used the purchase of habitat as an indirect means of preserving California species.[70]

53. "Beating up the birds is not going to make them successful in the wild," says Jesse Grantham, the Audubon assistant director for sanctuaries. Stephanie Simon, *Biologists Hope to Save Condors with "Tough Love" Preservation: After a Failed Effort, a Controversial Boot Camp at L.A. Zoo Teaches Birds How to Avoid Civilization*, L.A. TIMES, Feb. 5, 1995, at A1.

54. Mark Palmer of the Sierra Club said, "If we're creating these designer condors for the wild and pretending we're back in the good old days with real condors, we're just fooling ourselves. It's wrong to suggest that condors have to adapt to mankind." *Id.*

55. Power poles have historically been a major cause of death for condors. Since the training program was instituted, there has not been a single condor death attributed to power poles. Similar conditioning methods will be used in the future to instill a fear of vehicles to protect condors when they feed on roadside carrion. *See id.*

56. All 19 birds released prior to 1995 either died or had to be recaptured for their own safety. *See id.*

57. Biologists stress the importance of raising well-behaved birds now that can serve as role models in the future. *See id.*

58. An avian paleontologist called the condor "a species with one foot and even one wing in the grave." Kiff, *supra* note 51, at 7.

59. Condors have experienced two periods of massive decline. The first occurred about 10,000 years ago when the extinction of large mammals in the United State shrunk their range to that of the West Coast. The second occurred only after the arrival of white settlers. *See id.* Kiff asserts that "the record shows that the California condor is a fairly adaptable species in choice of food and habitat. Its principle failing seems to be that it did not have the good fortune to evolve bullet-proof vests or the capacity to nest on building ledges like pigeons." *Id.* at 8.

60. The primary early cause of mortality was likely shooting for sport. William Leon Dawson condemned this practice in 1923, saying that "a dead condor could win a moral beggar a momentary applause at the local hardware store; but a condor wantonly slain was a dead epic, a treasure-laden galleon 'spurlos versenkt' and an indictment of a civilization false to its core." *Id.* Lead poisoning, accidental scavenging of poisoned wolf bait, DDT exposure, capture for pets or display, egg collecting, and collisions with power lines and buildings have also been cited as chief causes of mortality. It is important to note that none of these is either natural nor evolutionary in nature. Even the natural cause of decline, egg predation by ravens, has likely been influenced by the proliferation of ravens as a result of garbage dumps. *See id.* at 9.

61. *See supra* notes 59-60.

62. CAL. FISH & GAME § 2780 (1990).

63. *See* CAL. FISH & GAME § 2786 [proposed]; *See also* Paul Rogers, *Prop. 197 Places Cougars in its Scope*, SAN JOSE MERCURY NEWS, Feb. 28, 1996, at 16A.

64. *See* Mansfield, *supra* note 21, at 6.

65. *See* DFG *Testimony*, *supra* note 22, at 25.

66. While reported mountain lion sightings have increased from 59 in 1991 to over 300 in 1994, many reports were made by untrained members of the public who may inaccurately characterize another predator as a mountain lion. In addition, the increased public interest in mountain lions in light of recent attacks may have inflated this number. *See id.* at 26.

67. *See, e.g., supra* notes 21, 22, and 66.

68. *See* CAL. FISH & GAME § 2780 (d) (1990).

69. *Id.*

70. *See id.* §§ 2786, 2787.

The mountain lion's public reputation has undergone a remarkable rehabilitation over the years. Originally designated a bountied predator, the mountain lion progressed to a game animal, then to a non-game animal, and finally to the present status of "specially protected mammal."[71] Proposition 117 provided the mountain lion with this current level of protection.[72]

Although the mountain lion seems to enjoy a great deal of protection, it effectively occupies the same position as any species designated as "threatened" under the ESA.[73] Any lion posing an "imminent threat to public health or safety" may be immediately taken.[74] Likewise, the statute authorizes the immediate taking of a depredating lion "encountered while in the act of pursuing, inflicting injury to, or killing livestock, or domestic animals."[75]. If property is "injured, damaged, or destroyed by a mountain lion," the property owner may request a permit to take the depredating lion.[76] The DFG shall then confirm the depredation in less than 48 hours and issue a taking permit if the depredation is confirmed.[77] Limits of both time and distance operate to ensure that only the depredating lion is taken in this process.[78] All carcasses of mountain lions killed in this manner must be turned over to the DFG in order to reduce fraudulent claims of lion attacks.[79] To ensure humane taking procedures, the statute forbids the use of "poison, leg-hold or metal-jawed traps, and snares."[80] In general, these guidelines conform to ESA regulations for threatened species' protection.[81]

The most powerful element of Proposition 117 is its funding provision. The statute specifically lists the ways its purchasing power should be divided, including both the acquisition of new lands and the improvement of existing land.[82] The largest compelled expenditure is to purchase land for mountain lion habitat in central California, while a substantial portion of the fund is reserved for discretionary purposes.[83]

Opponents of Proposition 117 have introduced a ballot measure for the Spring of 1996 to repeal its protections, Proposition 197. The rationale for the measure is that mountain lions are dangerous and must be managed in a manner consistent with "the needs of our changing society."[84] The measure states that "[t]he presence of mountain lions pose[s] a threat to people, pets, and livestock, as evidenced by the dramatic increase in the number of threatening and life-taking confrontations between mountain lions and people."[85] Furthermore, sightings of mountain lions in suburban areas have increased, and therefore both the danger and cost of mountain lions will increase.[86] While this cost will increase, none of the thirty million dollars Proposition 117 spends each year "is used to protect people or manage mountain lions."[87] This precatory reasoning gives rise to several significant changes in Proposition 117.

The first significant change is to broaden the agencies who may take a dangerous lion beyond the DFG and public safety agencies to any wildlife management government agency or any owner of land.[88] This would effectively treat any threatening lions as if they had already depredated against people or property and effectively allow a mountain lion to be shot before it had manifested any danger.[89] Almost anyone could respond to the danger, removing the verification safeguards in Proposition 117 to ensure that only the depredating animal is taken.[90] The proposed amendment's greatest weapon, however, lies in its authorization of "[t]he preparation and implementation of a mountain lion management plan."[91] This would allow the removal of almost all protections for the mountain lion under a new management plan.[92] Opponents of the amendment are in the difficult position of attacking a proposal that purports to save money and protect the public.

71. *See* Mansfield, *supra* note 21.

72. *See* CAL. FISH & GAME § 4800 (1990).

73. *See* 16 U.S.C. § 1533(d) (1994).

74. *See id.* § 4801.

75. *See id.* § 4807.

76. *See id.* § 4802.

77. *See id.* § 4803.

78. *See id.* § 4804.

79. *See id.* § 4806.

80. *See id.* § 4809.

81. *See* 16 U.S.C. § 1533(d) (1994).

82. *See* CAL. FISH & GAME § 2787 (1990).

83. *Id.*

84. *Id.* § 2786(a) [proposed under amendments scheduled for the March 26, 1996 ballot].

85. *Id.* § 2786(c) (proposed under amendments scheduled for the March 26, 1996 ballot).

86. *See Id.* § 2786(d), (e), (f) (proposed under amendments scheduled for the March 26, 1996 ballot).

87. *Id.* § 2786(g) (proposed under amendments scheduled for the March 26, 1996 ballot).

88. *See Id.* § 4801 (proposed under amendments scheduled for the March 26, 1996 ballot).

89. *See* sources cited *supra* in notes 73-81.

90. *Compare* CAL. FISH & GAME § 4807 (1990) *with* CAL. FISH & GAME § 4801 (proposed under amendments scheduled for the March 26, 1996 ballot).

91. CAL. FISH & GAME § 2786(a) (1996).

92. *See id.* § 4800(a), (b) (1990).

III. Biological Issues

When attempting to understand the emotions and motivations surrounding wildlife reintroduction programs, it is important to take a historical perspective. Most species that are in need of recovery efforts are placed in that situation because of past actions by humans.

The gray wolf was not viewed as a dire threat by Westerners until the 19th century, when the buffalo herds and other native ungulates were decimated in the plains and Rocky Mountain areas.[93] The loss of its natural prey base caused the gray wolf to turn to domestic livestock as an alternative prey.[94] The correlative decline of opportunity for buffalo hunters caused many to become "wolfers" as bounties began to spring up from both ranchers and local governments and the federal government began employing trappers full-time to eradicate wolves.[95] A few wolves became especially effective livestock killers, and particularly large bounties were offered for their capture and death.[96] This sudden increase in wolf depredation caused an increased fear and hatred against all wolves.[97] The cumulative effect of this campaign against the wolf was the near extinction of all wolves in the West by 1924.[98] By 1982, the gray wolf population had been reduced to less than one percent of its original numbers and largely confined to four states.[99] This population decline was due solely to the efforts of mankind.

The California condor's demise may similarly be traced to the actions of humans quite apart from the environment. While it never possessed plentiful numbers, its range was at one time quite extensive, including most of the southern and western United States.[100] The extinction of large mammals in the late Pleistocene Era restricted its range to the West Coast.[101] The condor thrived on washed-up carcasses of marine mammals until the time of European settlement.[102] Since then, condor populations have declined due to loss of foraging habitat, encroachment on nesting territories, and direct mortality due to collisions with man-made structures, shooting, and inadvertent poisoning.[103] Of these threats to condors, intentional shootings[104] and inadvertent poisoning[105] are the most dangerous. Only about two dozen condors remained in the wild by the 1980's, and with mortality rates of 23 to 40 percent annually, scientists were forced to capture the last 14 condors for their own preservation in 1987.[106]

The mountain lion population was first affected by government policy when the species was designated a bountied predator in 1907.[107] In the ensuing 57 years, 12,500 lions were killed for bounties.[108] The lion was classified as a nongame mammal from 1963 until 1969, when it was reclassified as a game mammal.[109] Over the next two years, 118 lions were taken as game mammals.[110] Recreational hunting of mountain lions ended by statute in 1972, allowing people to tale lions only when they have killed, injured, or threatened livestock or domestic pets.[111] The mountain lion retained this status until 1990, when voters passed Proposition 117 in response to a threatened renewal of the recreational hunting of mountain lions.[112] Mountain lion populations have recovered dramatically in the twenty-four years since they were first protected.[113]

93. *See* UNITED STATES FISH AND WILDLIFE SERVICE, NORTHERN ROCKY MOUNTAIN WOLF RECOVERY PLAN 1, (1987).

94. *See id.*

95. *See d.*

96. *See id.*

97. *See id.*

98. In fact, one supervisor of the Federal eradication program boasted at that time that wolves were "no longer a serious menace." *See* Todd, *supra* note 25, at 468.

99. "In 1982 there were estimated to be only six thousand to nine thousand gray wolves in the entire United States. . . . The populations were confined largely to Alaska, Minnesota, Wyoming, and Michigan. . . . Among subspecies, the Mexican wolf exists only within a captive breeding program, and three races native to the southwestern United States have become entirely extinct." *Id.* at 476.

100. *See* Michael Wallace, *The California Condor: Current Efforts for its Recovery*, 8 U. MICH. SCH. NAT. RESOURCES 32 (1990).

101. *See id.*

102. *See id.*

103. *See* Michael Wallace & William Toone, *Captive Management for the Long Term Survival of the California Condor*, in WILDLIFE 2001: POPULATIONS 766, 767 (Dale R. McCulloch & Reginald H. Barrett eds., 1992).

104. "Over the years, shooting has generally been regarded as the single most serious cause of the decrease in condors, and most early accounts of the species mention birds that were shot." Kiff, *supra* note 51, at 8.

105. Inadvertent poisoning through ingestion of bullet fragments in carcasses was first discovered in the early 1980's. Most poisonings probably involved deer, although condors would also scavenge the carcasses of nongame animals shot within their range. *See id.*

106. *See* Wallace, *supra* note 100. "It was hoped in the early 1980's that field research would quickly identify mortality factors and subsequent conservation measures could be implemented in time to save the remaining wild population in its habitat. The continued loss of birds, however, prompted governmental authorities to remove all wild condors to the relative safety of captivity." Wallace & Toone, *supra* note 103, at 767.

107. *See* Mansfield, *supra* note 21, at 4.

108. Up to 350 lions were taken in a single year. *See id.*

109. *See id.*

110. *See id.*

111. *See id.*

112. *See, supra* note 18.

113. *See, supra* note 22.

The decline of these species due to human action had a dramatic impact on the surrounding ecosystem. It was once believed that wolves ruined the area they inhabited, with Theodore Roosevelt calling them "the beast of waste and destruction."[114] Scientists have discovered however, that wolves play an integral part in maintaining the equilibrium of an ecosystem.

An early example of this balancing effect was observed on Isle Royale, Michigan in 1949.[115] The isle had supported a moose population independent of any predators until wolves crossed the winter ice to the island that year.[116] The subsequent wolf predation on the moose herds stabilized the numbers of the herds which had previously fluctuated wildly from year to year.[117] It also improved the vegetation quality and led to greater population densities of both the moose and wolf than anywhere else in the United States.[118]

This regulatory effect of the wolves is not unique to the Isle Royale population. Studies have shown

> four useful results of [wolf] predation . . .: (1) sanitation (removal of diseased animals to prevent epidemics), (2) natural selection (culling of deformed or genetically inferior animals before reproduction), (3) stimulation of prey productivity (acceleration of reproductive rates among prey through higher twinning and fertility), and (4) population control (maintenance of prey populations at levels that can be supported by the habitat, protecting against overgrazing, erosion, and [desertification].[119]

An example of the effect of removing wolves from the environment is provided by the Kaibab wildlife preserve in Arizona. Wolves were systematically eradicated from the preserve in the 1930's, after which there occurred "a rapid increase in the local deer herd, massive overbrowsing, general and permanent habitat damage, and a subsequent crash in deer populations."[120] The absence of wolves has a significant detrimental impact on an ecosystem because they play a role that no other animal can.

The wolf is the "preeminent predator of large ungulates in the Northern Hemisphere",[121] filling an ecological niche which no other predator can fill.[122] While the coyote may occasionally prey on old, young, or vulnerable ungulates, its usual prey is smaller animals.[123] The mountain lion does prey on large animals, but its methods contrast sharply with those of the wolf and its quantitative and evolutionary impacts differ accordingly.[124] Bears, both grizzly and black, may prey on ungulates but will usually select only the calves unless an adult is particularly weak.[125]

Wolves are also opportunistic predators, preying on the weakest members of the ungulate herds.[126] They differ from other species however, in how they define vulnerability. Instead of preying on only the young or infirm, wolves' selection of prey is influenced by the: "(1) age and sex [of the prey], (2) condition due to nutrition, disease, and infirmity, (3) behavior, and (4) snow conditions."[127] As a result of this variety in factors influencing prey selection, wolves help maintain a consistent herd size for their prey.[128]

Wolves can benefit their prey species in other ways as well. When wolves regulate ungulate herds, there is a lesser chance of epidemics and a lesser impact when disease does strike.[129] In addition, wolves can restore natural patterns of movement and

114. *See* Todd, *supra* note 25, at 466.

115. *See* Zuccotti, *supra* note 17, at 346.

116. *See id.*

117. *See id.*

118. *See id.*

119. Todd, *supra* note 25, at 478.

120. *Id.*

121. RECOVERY PLAN, *supra* note 23, at 63.

122. *See id.*

123. *See id.*

124. *See id.*

125. *See id.*

126. *See id.* at 70.

127. *Id.*

128. *See* RECOVERY PLAN, *supra* note 23, at 71.

129. Hank Fischer of the Defenders of Wildlife offers an example. "In the mid-1980's, bighorn sheep in the park suffered from pinkeye, which killed off 50% of the herd. If we had a wolf population back then, the first sheep to go would have been the sick ones, and the disease might not have spread to the entire herd." Yellowstone biologists are paying close attention to the bison herds as well. The wolf fills the top niche of the food chain and is the only predator of adult bison. Biologists hope the wolves will thin the bison herds to reduce their migration outside of park boundaries. Nearby ranchers fear the bison herds will infect domestic cattle with brucellosis, a highly contagious disease, and seek additional limits on the wanderings of the bison. Preliminary estimates estimate the current 3,500 bison will be reduced 15% by wolf predation. *See* Sahagun, *supra* note 24. Cattle ranchers urge the roundup and vaccination of all bison, with infected animals slaughtered before they can infect the cattle. Ranchers fear they may be forced to destroy their entire herd if a single cow is infected. Conservationists oppose such actions because it would eliminate the most precious attribute of the Yellowstone bison. Argues Bob Ferris of the Defenders of Wildlife, "[t]his is the last free-ranging herd in the United States. There's a tremendous appeal to that. If we start managing them in this fashion, we lose quite a bit of our national heritage." Tom Webb, *Buffalo War Pits History vs. Science*, SAN JOSE MERCURY NEWS, July 10, 1996, at 13A. The issue is further compounded by a lack of research showing that bison and cattle are affected similarly by the disease or that they can transmit it to each other. "Not a single documented case of brucellosis transmission from bison to cattle has ever occurred in the wild," says Rich Day of the National Wildlife Federation. Furthermore, while about half of all Yellowstone bison would test positive for brucellosis, there

behavior to herds which have become too tame around humans.[130] This natural migration is important in avoiding overgrazing and preventing disease.[131]

The effect of a summit predator is not limited to its prey species, however, but spreads across the entire ecosystem. While the exact impact of wolf reintroduction in Yellowstone is difficult to quantify, empirical evidence of these changes abound.[132] When a summit predator makes a kill, it provides sustenance for many other species down the food chain.[133] After the wolves have finished with a kill, scavengers visit to take their share.[134] Insects then visit to clean the carcass, and birds come to feed on the insects.[135]

Summit predators also regulate the ecosystem by restoring balance in predator-prey relationships. Wolves will prey on the coyote population which swelled in the absence of the wolves.[136] This will leave more of the coyotes' prey, mainly small rodents, for predatory birds such as hawks, eagles, and owls.[137] The diminution of the coyote population will benefit foxes as well, which coexist well with wolves.[138] Just as the absence of a summit predator has a ripple effect down the rest of the food chain, its presence can produce an enormous cumulative benefit.

Some have questioned if reintroduced predators can reintegrate when there are rival predators already entrenched in the ecosystem.[139] This fear appears to be groundless, as seemingly rival predators have coexisted well with each other in previous reintroduction environments.[140]

Both biologists and hunters are concerned however, about the impact of reintroduced predators upon sensitive prey species.[141] Despite the evidence that wolves usually do not adversely affect their prey populations,[142] wolf predation has been identified as a significant factor in ungulate population declines in three geographically separate areas.[143] Similarly, mountain lion predation has been linked to a decline in both mule deer and Peninsular bighorn sheep in California.[144]

The predation of sensitive prey species is significant. Mountain lion attacks on Bighorn sheep have interfered with biological studies and drastically reduced the size of some herds.[145] Lions have also appeared as a surprisingly large factor in the decline of mule deer.[146] Likewise, wolves have been noted as contributors to deer declines in several different areas.[147]

would be no means of determining how many of those bison actually carried the disease rather than merely having been exposed to the virus at some time in their life. Killing the animals that test positive "would result in the near decimation of the herd" according to Paul Nicoletti, a veterinarian and bison expert at the University of Florida. Lastly, any plan to control brucellosis would ultimately fail unless elk were included as well, as they commonly are infected with the brucellosis disease. *See* Roger Di Silvestro, *Bison On The Firing Line*, NATIONAL WILDLIFE, Dec./Jan. 1997, p. 40-41.

130. Without wolves, ungulates stop fearing predation and become tame. They stop migrating and become, as Tom Dougherty of the National Wildlife Federation described it, "'lollipop' deer and elk that people can drive up to and pet." *See* Gary Gerhardt, *Wolves to Alter Park Ecosystem*, ROCKY MOUNTAIN NEWS, Jan. 15, 1995, at 22A. Once wolves begin to prey on ungulates again, the ungulates return to their natural patterns. *See id.*

131. Overgrazing is reduced both because of a return to migratory movements and a reduction in herd size. Biologists estimate that as a result of wolf predation in Yellowstone, elk will decline 20% or 10,000, mule deer by 19% and moose by 13%. *See* Sahagun, *supra* note 24.

132. *See id.*

133. *See id.*

134. These scavengers include bears, coyotes, bald eagles, and ravens. *See d.*

135. Five different species of birds feed on the scavenging insects. *See id.*

136. *See id.*

137. *See id.*

138. *See id.*

139. Of special concern was the relationship between wolves, bears, and mountain lions. *See id.*

140. Chris Servheen, grizzly bear recovery coordinator for the FWS, related his experiences in Montana's parks. "In Glacier, there is not enough competition to stress any predator population. In fact, a few years ago we had a big male adult grizzly that had great success following wolves and mountain lions around and stealing whatever they killed. That bear stayed fat and happy and never did have to hibernate." *Id.*

141. *See* Mansfield, *supra* note 21, at 7.

142. *See* RECOVERY PLAN, *supra* note 23, at 70.

143. Recent studies examining white-tailed deer in Minnesota, moose in Alaska, and black-tailed deer in British Columbia confirm this. *See id.* at 70-71.

144. *See* DFG *Testimony*, *supra* note 22, at 26. However, recent evidence indicates that pollution may be the primary reason for the bighorn sheep decline. *See* Carl Nolte, *Big Decline in Yosemite Bighorn Sheep / Rare Animals Vanishing from Sierra*, S.F. CHRON., May 28, 1996, 1996 WL 3220719.

145. From 1987-1989, three mature male mountain lions were removed from an area where they were preying on a small population of reintroduced Bighorn sheep. After the lions were removed, the herd blossomed from 35 members in 1989 to over 100 animals in 1994. *See* Nolte, *supra* note 144. In 1992, the DFG began a program of fitting Bighorn sheep with radio transmitters in order to track their primary causes of mortality. Of the 36 mortalities of Bighorns equipped with radio transmitters recorded so far, 24 were caused by mountain lions. *See* Steve Torres, *Mountain Lions - California's Largest Carnivore*, 57 OUTDOOR CALIFORNIA SPECIAL MOUNTAIN LION ISSUE 9 (1995).

146. The DFG previously attributed the decline in mule deer populations to drought and the accompanying decrease in forage. After a four-year study however, mountain lions were discovered to be responsible for up to fifty percent of mule deer deaths. *See id.*

147. *See* RECOVERY PLAN, *supra* note 23, at 70-71.

Although the damage reintroduced predators inflict upon sensitive prey species is real, fears that reintroduced species are decimating sensitive prey species may be misfounded. Extrinsic factors contributed to the declines in prey for both the wolf and mountain lion. Wolves were only one of several factors leading to the deer decline, including decreased quality and quantity of forage, harsh weather, and a decrease in alternate prey populations.[148] Recent evidence indicates that mountain lions do not cause declines in deer populations, but may slow or impair recovery of herds which have been weakened by other factors.[149] These other stresses include habitat loss, competition for habitat with domestic livestock, drought, and harsh winters.[150] Bighorn sheep declines are also affected by other factors, including disease and poor range conditions.[151] These Bighorn populations began to decline before Proposition 117 was passed in 1990, and mountain lions today are estimated to be responsible for only 22 percent of the mortalities of sensitive Bighorn populations.[152] While it may appear on the surface that predator reintroduction causes the decline of sensitive prey species, there are too many other factors impairing the recovery of these populations for the elimination or introduction of predators to have a decisive impact.

IV. Public Attitudes Toward Species Reintroduction

Contrary to popular belief, most people support wildlife reintroduction.[153] Some states evidence this at their ballot box.[154] Also, most hunters have recognized the need for all members of an ecosystem and have expressed a willingness to forego some hunting opportunities in order to facilitate reintroduction.[155] Visitors to Yellowstone National Park approve of reintroduction by a six to one margin.[156] Lastly, even most ranchers are not opposed to wildlife reintroduction *per se*.[157]

The general public's primary concern with wildlife reintroduction is safety. While this fear is usually directed towards reintroduced predators[158], it occurs with the reintroduction of relatively harmless animals as well.[159]

Wolves are a primary target of this opposition. Wolves have been hated and feared by Europeans since the Middle Ages and by Americans since the days of the early frontier.[160] The irony in this antipathy is that "[w]hile other predators like mountain lions and bears kill people on a regular, if infrequent basis, the wolf's record is remarkably clean. Indeed, there is no documented case of a healthy wild wolf

148. The impact of these contributing factors was compounded by their recurrence over several consecutive years. *See id.* at 71.

149. *See* DFG *Testimony*, *supra* note 22, at 26.

150. *See* Mansfield, *supra* note 21, at 7.

151. *See* DFG *Testimony*, *supra* note 22, at 26.

152. *See id.*

153. The Wolf Fund reports that 44% of Wyoming residents favor wolf reintroduction, with only 34.5% against it. Over half of all Montana residents favor the return of the wolves, as do 72% of Idaho residents. In a hearing in Idaho regarding wolf reintroduction, forty people testified in favor of the proposal with only two people testifying in opposition. *See* Zuccotti, *supra* note 17.

154. "Several states have acted to protect their existing predators. California voters outlawed sport hunting of mountain lions in 1990. In 1992, Colorado restricted bear hunts. . . . Public pressure stopped grizzly bear hunting in Montana in 1991 and Florida has now ended its bear hunts." John Balzar, *A Reversal In Fortune: Predators Going From Targets to Icons*, L.A. TIMES, July 6, 1994, at 7.

155. *See* Brian Beisher, Comment, *Are Ranchers Trying to Save Their Hides or Are They Just Crying Wolf - What Issues Must Be Resolved Before Wolf Reintroduction to Yellowstone National Park Proceeds?*, 29 LAND & WATER L. REV. 417 (1993).

156. *See* RECOVERY PLAN, *supra* note 23, at 10.

157. "I am in contact with many [other] ranchers and I find that the majority are not opposed to wolf reintroduction - so long as they are permitted to protect their livestock. The areas where the wolves have been released are some distance from livestock grazing areas. Yellowstone Park has a huge surplus of buffalo that leave the Park in winter months in search of food. The ranchers surrounding the Park don't want them out of the Park as they are afraid of brucellosis. . . . I would say the wolf is the perfect solution. The wolves were exterminated with 30-30 rifles and strychnine. If they become a menace I'm sure we have enough technology and weapons to keep them in check." Rancher Ron Hughes, Prepared Testimony Before House Natural Resources Committee (Jan. 26, 1995), *available in* WESTLAW, Fed. News Serv. Wash. Package, 1995 WL 6624004.

158. An example of this was demonstrated recently when an innovative coalition of conservation groups, loggers, and timber companies agreed to a joint management plan to reintroduce grizzly bears to the Selway-Bitterroot wilderness area of Idaho and Montana. This unusual cooperation was in part motivated by the controversy raised by grey wolf reintroduction in Yellowstone. "We realized that if we were starting out . . . polarized, the fight over grizzlies would make the Yellowstone wolf debate look like a picnic" said Tom France, attorney for the National Wildlife Federation. The coalition agreed to a set of principles then educated the surrounding communities to the facts of reintroduction. Furthermore, the group hopes to persuade the FWS to relinquish control of the reintroduction effort to the local group in order to better address any problems that may occur. This is the first time such local control has been granted, and it is in large part responsible for the popularity of the program with local residents. *See Historic Plan Paves Way for Grizzlies' Return to Idaho's Bitterroot Region*, NATIONAL WILDLIFE, Dec./Jan. 1997, p. 60-61.

159. "For a moose reintroduction proposal, 42 moose-car collisions a year were forecast if the herd grew as planned. Drivers would still be 285 times more likely to hit another car than a moose. Yet, at public hearings on the state proposal, resident after resident worried about spotting a moose in his headlights. 'It's nice to see one of those animals until one comes through your windshield and kills your wife,' said one resident. Opposition to the moose proposal was so strong that the plan was abandoned." Kelly, *supra* note 37.

160. "Human antipathy toward [the wolf] dates back at least to the Middle Ages, when wolves feasted on human corpses during the Black Death . . . . To American settlers, wolves often represented the 'howling' wilderness, and at a time when a single night of predation could ruin a family, wolves were a constant reminder of the precariousness of frontier life." Carpenter & Busch, *supra* note 25.

killing anyone in North America."[161] Rather than preying on humans, wolves actually avoid human contact.[162] While there are documented instances of wolves attacking people, few of these attacks led to serious injury.[163] This seems remarkable given wolves' ability to savagely kill moose and deer, creatures with much thicker hides and better defenses than humans.[164] Most of these attacks can be explained by the wolves being either tame or rabid.[165] People who raise wolf pups then release them to the wild remove the animals' instinctive fear of humans.[166] Also, rabid wolves will act unpredictably and in a fashion different from normal wolf behavior.[167] The overall safety of human proximity to wolves is illustrated by the nineteen million visitor days in Minnesota's Superior National Forest without a single recorded wolf attack.[168]

Unfortunately, not all reintroduced predators are as benign as the wolf.[169] Mountain lions have a history of attacking humans, with two women killed by mountain lions in 1994.[170] These recent deaths may obscure the historical trend however, for very few attacks have occurred in the last hundred years, with fewer still resulting in fatalities.[171] Only five people have been killed by mountain lions in California in the last 107 years, with two of the fatalities stemming from rabies transmitted to them through a lion bite.[172] This reflects the DFG's role as a shield interposed between the people and the lions.[173] Even with the modern larger lion population, "[m]ore people are killed each year by bees, dogs, and auto collisions with deer than by mountain lions."[174]

Despite the objective lack of danger from mountain lion attacks, people are still scared.[175] Part of this fear is a result of the increased proximity of humans to lions.[176] One response to this fear has been the placing of Proposition 197 on the March 26, 1996 ballot in California, a measure designed to roll back the protection bestowed by Proposition 117.[177] One result of this measure would be the allowance of sport hunting of mountain lions.[178] Supporters of Proposition 197 argue that the hunting of lions would both decrease the threat to humans[179] and raise revenue for the state.[180] Opponents argue that hunting is an ineffective solution to the problem.[181] Both statistics[182]

161. *Id.*

162. *See* RECOVERY PLAN, *supra* note 23, at 10.

163. *See* L. David Mech, *Who's Afraid of the Big Bad Wolf?*, AUDUBON, March 1990, at 83-84.

164. *See id.* at 84.

165. *See id.* at 85.

166. *See id.*

167. *See id.*

168. *See id.*

169. *See* Carpenter & Busch, *supra* note 25.

170. *See Mountain Lions in California: Expanding the Dialogue*, 57 OUTDOOR CALIFORNIA SPECIAL MOUNTAIN LION ISSUE 2 (1995).

171. "Mountain lion attacks on humans are rare. A scientific review of records on attacks by cougars on humans in the United States and Canada form 1890 through 1990 indicated there were 53 cougar attacks on humans during this period - nine attacks resulting in 10 human deaths, and 44 non-fatal attacks. Since that report was published in 1991 . . . there have been three documented fatal attacks in the United States, one in Colorado and two in California. . . . Verifiable records of human beings injured by mountain lions in California document only 12 such incidents. . . . No human injury incidents resulting from mountain lions were verified in California between 1909 and 1986." *Mountain Lion Attacks on Humans*, 57 OUTDOOR CALIFORNIA SPECIAL MOUNTAIN LION ISSUE 10 (1995).

172. *See id.*

173. *See* Charles F. Raysbrook, DFG *Responsible For All Wildlife*, 57 OUTDOOR CALIFORNIA SPECIAL MOUNTAIN LION ISSUE 3 (1995).

174. Wayne Pacelle, Vice President of the Humane Society, *quoted in* Rogers, *supra* note 63.

175. "[Y]ou'll hear that your chances of getting struck by lightning are 10 times greater than your chances of attack by a mountain lion. But this is one of those fiddled statistics. It is true if you live where lions are rare. If you live or explore in the areas where lions and humans juxtapose, the odds begin to look a bit different." Reynolds, *supra* note 38 at 19. "Tens of thousands of people in California are living under daily threat of a mountain lion attack," said California State Senator Tim Leslie. Rogers, *supra* note 63.

176. "[E]vidence of the presence of mountain lions includes lions killed by vehicles on highways, confirmed sightings, property damage by lions in areas where they were seldom seen until recently, and lions discovered in areas which were long ago urbanized. In recent years, it has become relatively common for the DFG to respond to reports of lions in residential areas. In some cases, people became aware of the animals only after neighborhood dogs drew attention to a lion in a tree or after seeing a lion on a rooftop." Mansfield, *supra* note 21 at 4. *See also* John Boudreau, *Big Cats Are Back on the Prowl; Fatal Attacks by Mountain Lions Renew Hunting Debate in California*, WASH. POST, April 3, 1995, at A6. "A strange thumping sound stirred Ventura County screenwriter Paul Glen Newman from his sleep one morning in January. His Siberian husky, he thought, was fighting a coyote or stray dog. But when he went to his front porch, he began to scream. A mountain lion, glancing up at him, had his 80-pound dog in its jaws. 'An incident like that could have involved a family member,' said Jeff Weir, assistant deputy director of the California Department of Fish and Game. 'Mountain lions are taking more pets. Pets are becoming a food source. And pets mean proximity to humans.'" *Id.*

177. *See* CAL. FISH & GAME § 2786(a) (1996).

178. *See* Rogers, *supra* note 63.

179. *See* Boudreau, *supra* note 176.

180. *See* Rogers, *supra* note 63.

181. *See id.*

182. "Human attacks have occurred in states where lion hunting is authorized. However, removal of less than 10 percent of the lion population, which is normally the result of recreational hunting, would not be expected to sufficiently reduce lion densities to result in lowering the potential for human attacks. From a scientific basis, it would likely be necessary to reduce a lion population by 25-50 percent in order to reduce competition for food between lions and thereby reduce the potential for the predatory act of attacking humans." DFG *Testimony supra* note 22, at 27.

and empirical studies[183] seem to support this contention because sport hunting removes the wrong animals and takes too few animals to fix the problem. While hunting mountain lions would likely reduce the probability of attacks, it could not be scientifically offered as a protection of public safety.[184] Hunting would also fail to raise a significant amount of revenue for the state.[185] Opponents of Proposition 197 argue that the scope of the solution far surpasses that of the problem.[186]

V. Economic Issues

The detrimental impact that reintroduced wildlife can have on their surroundings is substantial and at the center of any reintroduction debate. The large predators can do a great deal of damage to livestock and pets.[187] More surprisingly, even herbivorous animals can inflict significant damage on their surroundings.[188] The explanation for this damage is that humans are encroaching upon areas which wildlife have traditionally inhabited and some species may be forced into human territory because of overpopulation.[189] Ranchers possess a great fear of the potential for damage by reintroduced predators.[190] Traditional solutions, such as issuing a depredation permit to take the offending animal, are often ineffective because the marauding animal cannot be found.[191] Predator control programs have proven to be expensive and inefficient,[192] as well as dangerous to the public.[193]

Environmentalists and state governments have responded by setting up compensation funds for property owners damaged by reintroduced wildlife.[194] These funds have paid ranchers a substantial amount of money since their inception.[195] Ranchers contend however, that these com-

183. "Sport hunting would have no impact on the situation, said Paul Beier, an assistant professor of wildlife ecology at Northern Arizona University who spent several years studying California mountain lions. 'I'm neither for nor against hunting,' he said. 'But we can't sell hunting lions as a way to make the world safe for kids.' Sixty percent of mountain lion attacks on humans in North America occur in British Columbia, where the animals have long been hunted, Beier said. Sport hunters tend to track down big, adult lions for trophies. But juvenile cats are more apt to harm humans, he said." Boudreau, *supra* note 176.

184. *See* DFG *Testimony*, *supra* note 22, at 27.

185. In the past, hunting has failed to raise any significant funds. The 1987 and 1989 proposed hunting seasons raised less than $20,000 through hunting fees and licenses. In contrast, even a small mountain lion study costs roughly $250,000 for equipment and personnel. *See* Mark J. Palmer, Executive Director of the Mountain Lion Foundation, L.A. TIMES, Jan. 25, 1995, at B6.

186. Seth Adams, director of the Bay Area land trust organization Save Mount Diablo, said "the chance of you ever [even] seeing a mountain lion is less than dying of a bee sting." Boudreau, *supra* note 176.

187. Mountain lion attacks on pets and livestock causing death or injury have increased dramatically. *See Mountain Lions in California: Expanding the Dialogue*, *supra* note 170 at 2. The DFG has documented mountain lion depredations since 1972 and has recorded instances of lions killing or injuring over 60 sheep in a single attack. *See* Mansfield, *supra* note 21, at 4. As recently as March, 1995, a single lion killed 37 sheep and mauled 13 others in a single night. *See* Boudreau, *supra* note 176.

188. Elk were extirpated from Michigan in 1878. The state reintroduced elk in 1918, and since their return they have damaged crops, timber, and even physical property. Reintroduced moose have caused damage similar to that of the elk. *See* Thompson, *supra* note 3.

189. Human encroachment upon mountain lion territory is cited as one reason for the increase in conflicts. However, behavioral anomalies such as fighting between juvenile and adult lions and cannibalism indicate that overpopulation may be a more serious pressure forcing lions into areas settled by humans. Mansfield, *supra* note 21, at 7.

190. Rancher Keith Martin said "[t]he good Lord designed the wolf to be a killing machine." Robbins, *supra* note 28. Fellow rancher Julie Hansmire added that "urban people have a 'warm and fuzzy feeling" about wolves but had never walked into a pasture to see a lamb with its nose chewed off or its throat cut." Dirk Johnson, *Yellowstone, Idaho to See Wolves Again, According to Plan*, PORTLAND OREGONIAN, June 17, 1994, at A24.

191. In 1994, the DFG issued 322 depredation permits to take marauding mountain lions. Only 121 lions were actually killed, and some of those were killed in the act of attacking livestock, a time when a permit is not needed. *See* Reynolds, *supra* note 38, at 19.

192. Past federal programs have spent over $35,000 per wolf killed when each wolf did a maximum of $2,000 damage to livestock. Also, predator control programs cost more to administer than ranchers paid to the government in grazing fees. Some have argued that since ranchers grazing on public lands receive subsidized land prices, that should compensate for any additional losses due to depredation. Any further compensation to the ranchers would amount to a double payment for their expense. *See* Todd, *supra* note 25.

193. Predator control programs invariably cause inadvertent injuries to hunters, children, pets, and livestock. *See id.*

194. Minnesota began a compensation program in 1978 paying up to $400 per head of livestock injured by wolves. Attacks must be verified by a local conservation officer and the market value of the livestock is determined by a neutral third party. *See* RECOVERY PLAN, *supra* note 23, at 91. The Defenders of Wildlife (hereinafter DOW), a private environmental organization, has established an over $112,000 fund to compensate ranchers in the Yellowstone area and New Mexico for depredations by reintroduced Gray and Mexican wolves in Yellowstone and White Sands Missile Range respectively. They will pay a rancher full market value for confirmed wolf kills and 50% of the value if the kill is unconfirmed but there is evidence a depredation occurred and wolves were in the area. *See* U.S. FISH & WILDLIFE SERV., REINTRODUCTION OF THE MEXICAN WOLF WITHIN ITS HISTORIC RANGE IN THE SOUTHWESTERN UNITED STATES DRAFT ENVIRONMENTAL IMPACT STATEMENT, 2-23 (1995) [hereinafter REINTRODUCTION OF THE MEXICAN WOLF].

195. DOW paid $15,000 to ranchers in Montana alone between 1987-1994. *See* REINTRODUCTION OF THE MEXICAN WOLF, *supra* note 194, at 2-23. Minnesota paid over $72,000 in claims from 1977-1980. *See* RECOVERY PLAN, *supra* note 23, at 91. DOW paid an additional $7,000 between 1995 and August 1996. *See Defenders of Wildlife Compensates for Yellowstone and Idaho Wolf Kills*, U.S. NEWSWIRE, Aug. 7, 1996, 1996 WL 5623198.

pensation schemes fail to fully compensate them for their losses.[196] Confirmation of livestock deaths is very difficult.[197] Even if a death is confirmed, a rancher must spend time and money wading through the bureaucracy to receive his compensation.[198] Furthermore, even if a rancher is never affected by wolves, she must undergo considerable expense to pay for precautionary measures to protect from the possibility of depredation.[199] Even if all the above obstacles were overcome, ranchers contend they may not be fully compensated because some animals may have a higher value to the rancher than to the market.[200]

Proponents of wildlife reintroduction argue that ranchers' claims are overstated. While it is true that verifying depredations can be difficult, the actual impact on livestock affected is small.[201] Most predators living near livestock do not prey on the livestock so long as native prey is available.[202] Very few ranchers are affected by predator depredation,[203] and those that are affected suffer few losses.[204] Many of the livestock losses attributed to wolves actually result from other factors.[205] Ranchers often reject these claims.[206] Studies show however, that predators and livestock can coexist in relative harmony.[207]

Wolves can and do attack pets, especially dogs which they view as competition.[208] Yet Alaska, which has a large population of both dogs and wolves, reports few problems.[209] Some ranchers have reported seeing more animals killed by human recreationists than by predators.[210]

Even if the depredation rates are low for reintroduced wildlife, and compensation programs exist to reimburse ranchers for losses, critics contend that the compensation system is unreliable and this unreliability should stop reintroduction programs before they begin.[211] Private compensation programs, like that of the DOW, are criticized for being

196. *See* Beisher, *supra* note 155.

197. Accurately determining the cause of stock deaths could be a difficult problem in the Yellowstone Ecosystem due to the style of ranching practiced in the area. Unlike stockgrowers in farming regions, ranchers in Wyoming necessarily turn their stock out to very large pastures to graze for the summer where they are left to their own devices until round-up time in the fall. Although a rancher regularly checks on his stock, rarely does he see every animal in the herd, and it is virtually impossible to make accurate counts. Even if the rancher moves cattle throughout the summer and has the opportunity to keep track of his stock, most missing animals would be difficult to find if dead somewhere on the large, rough pastures common to the Yellowstone Ecosystem. Another characteristic of ranching in Wyoming is the great number of animals the ranchers raise. With no large predator like the wolf with which to contend, this ranching strategy works quite effectively. But, enter the wolf and the rancher can no longer raise his cattle or sheep as he had before without risking more uncompensated losses than previously experienced." *Id.*

198. *See id.*

199. *See id.*

200. For example, a breeding female might be worth more to the rancher and the viability of the herd than she would be on the open market. *See id.*

201. *See* RECOVERY PLAN, *supra* note 23, at 91.

202. *See id.* at 71.

203. "Wolf depredations on livestock are not as widespread or as serious as generally believed. Only a small percentage of farms or grazing leases are affected annually, and a minute fraction (less than one-half of one percent) of the livestock in the area are killed or maimed by wolves . . . . [E]ven at chronic problem sites, losses are sporadic - both between and within years. Wolf problems appear localized, and few wolves are involved." *Id.* Between 1979-1981, only about .2% of all farms within the wolf range suffered from wolf depredation. A single farmer will often be the recipient of the majority of the compensation paid in a year. *See* RECOVERY PLAN, *supra* note 23, at 87.

204. From 1978 to 1980, wolves were responsible for only .05% of all cattle losses and .12% of all sheep deaths in Minnesota. *See* Todd, *supra* note 25.

205. These reasons range from extenuating to fraudulent. An animal weakened by birth defects and killed by a predator would have died anyway. An animal that dies and is scavenged by wolves may appear to be a depredation. If a herder negligently loses part of a flock, he may claim wolf depredation to avoid punishment. *See id.* Also, some ranchers may fraudulently claim the deaths of fictitious calves in order to receive a windfall from the compensation funds. *See* RECOVERY PLAN, *supra* note 23, at 91. Even some ranchers agree. Dan Bates claims to have never lost a single member of his herd to a predator in ten years of ranching. "I have already challenged my neighbors and I'm challenging other ranchers on the number of their cattle losses. I am questioning very strongly the motivations behind claiming high calf losses." Tamar Stieber, *Ranchers in* N.M. *Snarl at Lobo Plan*, DENV. POST, July 2, 1995, at C1.

206. Dr. Sam Luce, an Arizona rancher, asserted that "[p]utting wolves in this area would be just like introducing a smallpox plague in downtown Tucson. . . . The wolf is a vicious killer. . . . The people who sit in cities and decide to reintroduce wolves out here tell us the wolves won't bother our cows. But they're wrong. When those wolves get hungry and can't get anything else, they'll eat my nice, white-faced little cow over there." Douglas Kreutz, *Wolves Not Welcome on Blue Range*, ARIZ. DAILY STAR, March 26, 1995, at 1B.

207. A study in Minnesota and Western Canada found only 3.5 percent of wolf scats collected near livestock areas contained livestock remains. Most of these remains can be explained by the wolves' tendency to scavenge carrion. A four-year study of wolves in northwestern Minnesota revealed only one confirmed and two unconfirmed depredation incidents over the entire period. Studies of radio-collared wolves showed that while they did venture into areas with livestock, they rarely attacked the animals. Thirteen ranchers at the edge of this range stated in an interview that they had not lost any cattle to wolves. *See* RECOVERY PLAN, *supra* note 23, at 85-86. Another study showed that ten percent of all complaints alleging wolf depredation actually involved coyotes. *See id.* at 87.

208. *See* Carpenter & Busch, *supra* note 25.

209. In fact, dog sled racers worry more about encountering moose, which have been known to attack and trample dog teams, than wolves. *See id.*

210. *See* Hughes, *supra* note 157.

211. *See* Thompson, *supra* note 3.

private bodies and therefore able to withhold compensation at any time.[212] Even if these private entities could be legally bound to provide compensation, there is no assurance that they will remain financially solvent and able to pay these claims.[213]

Governmental compensation schemes are viewed just as disfavorably as private plans.[214] Government plans are always susceptible to repeal for economic or political reasons,[215] and even allocated funds are unreliable because politics can cause the funds to be shifted elsewhere.[216] Finally, all compensation schemes are inadequate because they fail to cover all wildlife in all places.[217] Without a constitutionally-based takings rule to compensate for damage from reintroduced wildlife, no property owner can be certain that compensation will exist when she needs it.[218]

The problem with this approach is that it assumes too much. The proposed solution, a constitutionally-based takings rule, is not feasible because there has never been a successful takings claim based on the ESA.[219] While private and public compensation programs are in some respects unreliable, their defects are possessed by any other public or private program and are not limited to this context. A program does not have to be enshrined in the Constitution to be effective; programs such as Social Security have demonstrated remarkable longevity without such protection. While the current compensation programs do have defects, they are the best solution available at this time.

Wildlife reintroduction has been criticized for draining money from more worthwhile causes, both environmental and otherwise.[220] The great cost of reintroduction projects drains an enormous share of resources from the FWS's overall budget.[221] This resource drain can only have a detrimental impact on other programs in the budget, programs which may have a greater chance for success.[222] This is not a new phenomenon however, as a few species have received the lion's share of the funding since the ESA's inception.[223] Some supporters of wildlife reintroduction believe that private funding is the best solution to this problem, citing both the bald eagle and peregrine falcon as species whose recovery was funded primarily by the private sector.[224]

Supporters of the current program believe that the benefits of reintroduction far outweigh the cost. The first facet of this argument looks at raw economic data. A recent study estimated that wolf reintroduction to Yellowstone would result in an $18 million net benefit to the surrounding area in the first year due to increased visitation, with a $110 million benefit over 20 years.[225] Wildlife reintroduction programs also spend most of their money on land acquisition, an expenditure which benefits more than just the reintroduced species.[226] These programs also generate side benefits such as breakthroughs in captive breeding and genetic analysis.[227] Lastly, supporters defend these programs on moral grounds.[228]

212. The DOW has limited their fund to compensating wolf depredations until the wolf is removed from the Endangered Species List. *See* Beisher, *supra* note 155.

213. *See* Thompson, *supra* note 3.

214. *See* Beisher, *supra* note 155.

215. *See* Thompson, *supra* note 3.

216. An example of this was provided by Sen. Conrad Burns (R-Mont.) shifting $330,000 from wolf studies to road and building maintenance in Yellowstone Park. *See* Beisher, *supra* note 155.

217. Not all areas have compensation programs, nor do all species. Among the species for which compensation is provided, the amount of compensation varies from place to place. *See* Thompson, *supra* note 3.

218. *See id.*

219. *See* Mollie Beattie, Director of the U.S. Fish & Wildlife Service, The Missing Connection, Remarks to the Natural Resources Council of America at the National Press Club (Dec. 08, 1993) in 29 LAND & WATER L. REV. 407.

220. C.B. "Doc" Lane, a former director of the Arizona Cattle Growers Association, observes that "[w]e have spent millions of dollars trying to stop evolutionary processes and trying to reintroduce them to save the warm and fuzzy species. I'd rather see that money go somewhere else. I'm not sure we have our priorities straight." Tara Meyer, *Aiding Wolves Rattles Ranchers/ Agency Aims to Restore Mexican Wolves on Arizona Range*, HOUS. CHRON., April 2, 1995, at A10.

221. Gray wolf reintroduction alone absorbs roughly 20 percent of the entire FWS budget. *See* Beisher, *supra* note 155.

222. "'Of 676 native species on the endangered and threatened lists' says Faith Campbell of the Natural Resources Defense Council, 'only around two dozen are receiving a significant amount of recovery effort.' Waiting in the U.S. Fish and Wildlife Service classification pipeline are nearly 4,000 other dwindling species, most of them little known plants and tiny invertebrates. 'They may not be sexy,' admits Campbell, 'but such organisms are what make ecosystems work.'" Nash, *supra* note 33. *See also* Barnum, *supra* note 51.

223. "Since the ESA began, more than half the money spent saving endangered species went to fewer than a dozen popular ones - grizzly bears, bald eagles, spotted owls. In fact, that means about $5 million has been spent on every Florida panther v. $1 or less for each of several endangered spiders, snails, rats, mussels, and bats." Kanamine, *supra* note 9. The Recovery Plan for the Atlantic green turtle estimates a cost of at least $88.2 million. *See* Lane, *supra* note 32.

224. *See* Barnum, *supra* note 51.

225. *See* Zuccotti, *supra* note 17. Furthermore, a group of more than 60 economists released a report in December 1995 debunking the myth that conservation costs jobs. *See* David Seideman, *Northwest Protects Jobs - and Beauty*, PORTLAND PRESS HERALD, July 28, 1996, at 1C.

226. *See* Kiff, *supra* note 51.

227. *Id.*

228. "[O]n an international or even national scale the amount of money spent on condors is comparatively negligible. We live in an affluent society where individual athletes have long-

VI. Conclusion

The issue of wildlife reintroduction is neither new nor free from debate. It is surrounded by questions about the law, the public, and economics. When analyzing the issues, it is important to balance all the equities involved to achieve a workable compromise. While this may seem daunting, it is necessary for reintroduction to work. Reintroduction is necessary for our society, if not for our pocketbook, then for our soul. "It is funny. People seem to need the wolf and the condor. People need the faith somehow that the restoration can happen. We need to feel we can hold onto our ecosystems, that we can put them back."[229]

term contracts larger than this figure, individual rock stars and actors make greater sums in a year, and individual paintings sell for more at auction. Is not the condor worth an equivalent amount as an art form or for its entertainment value? In aggregate, the budget for the entire endangered species program since its inception would not be sufficient to pay for the construction of a single modern bomber. Is not a complete arsenal of the world's biotic diversity a better defense for our future than airplanes?" *Id.*

229. *New Wildlife Director Supports Reintroducing Grizzlies, Wolves, supra* note 35.